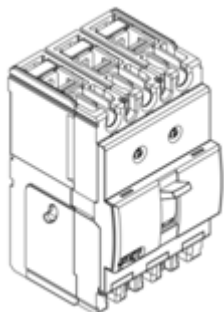


# DPX<sup>3</sup> 160

## Magnetic only

Reference(s) : 4 207 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17



### CONTENTS

|                                              |   |
|----------------------------------------------|---|
| 1. USE                                       | 1 |
| 2. RANGE                                     | 1 |
| 3. DIMENSIONS                                | 1 |
| 4. OVERVIEW                                  | 2 |
| 5. ELECTRICAL AND MECHANICAL CHARACTERISTICS | 3 |
| 6. CONFORMITY                                | 4 |
| 7. EQUIPMENTS AND ACCESSORIES                | 4 |
| 8. CURVES                                    | 6 |

### PAGES

## 1. USE

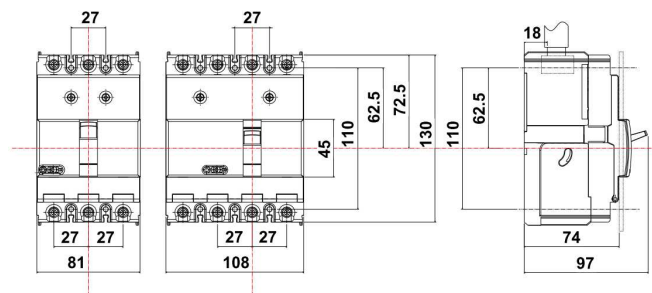
DPX<sup>3</sup> "moulded case" circuit breaker offers optimal solutions to answer to protection requirements of tertiary and industrial installations.

## 2. RANGE

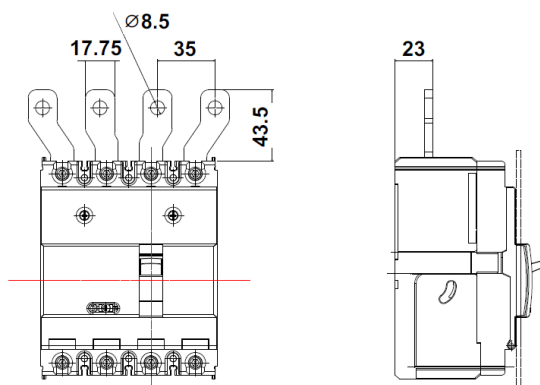
|                    | 16 kA    | 25 kA    |
|--------------------|----------|----------|
| I <sub>n</sub> (A) | 3P       | 3P       |
| 16                 | 4 207 10 | 4 207 14 |
| 25                 | 4 207 11 | 4 207 15 |
| 50                 | 4 207 12 | 4 207 16 |
| 63                 | 4 207 13 | 4 207 17 |

## 3. DIMENSIONS

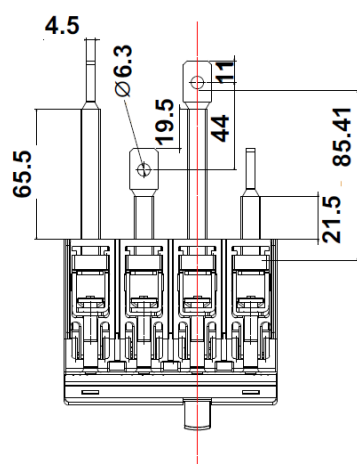
### Fixed version



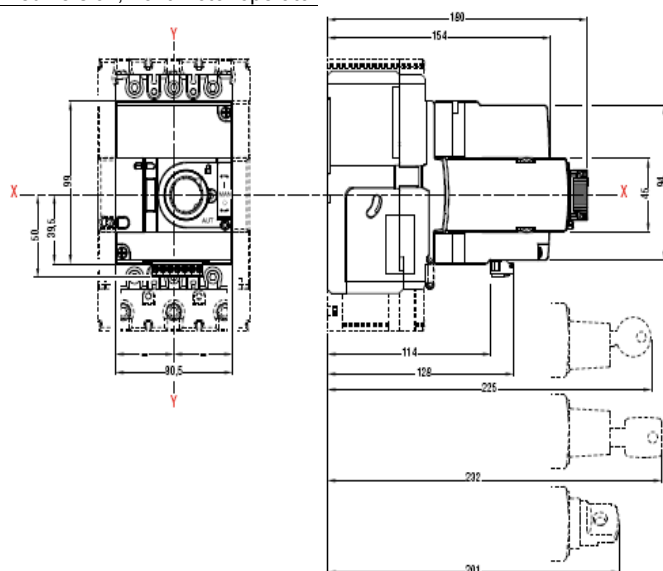
### Fixed version, front terminals



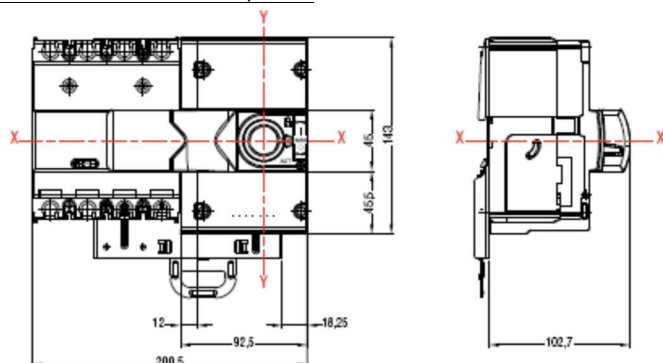
## Fixed version, rear terminals



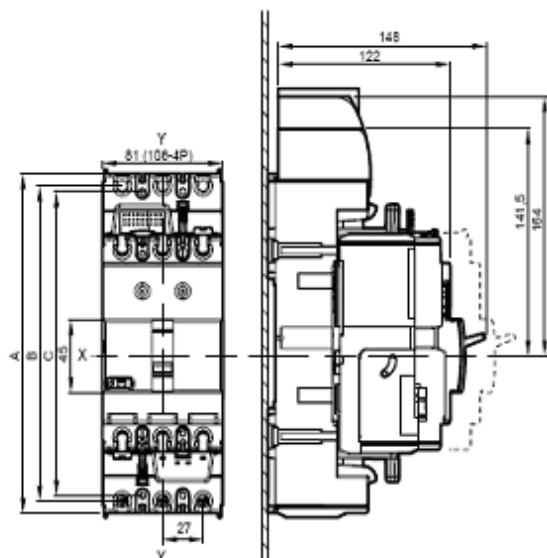
Fixed version, front motor operator



Fixed version, side motor operator



### Plug-in version



|                           | A   | B   | C   |
|---------------------------|-----|-----|-----|
| DPX <sup>3</sup> 160 - 3P | 208 | 193 | 186 |
| DPX <sup>3</sup> 160 - 4P | 238 | 223 | 216 |

## 4. OVERVIEW

#### 4.1 Supplied

Supplied with

- fixing screws
- cage terminals (70mm<sup>2</sup> flexible cable or 95mm<sup>2</sup> rigid cable)

## 4.2 Mounting possibilities

On plate:

- Vertical
- Horizontal
- Supply inverter type

On DIN rail:

- Vertical
- Supply inverter type

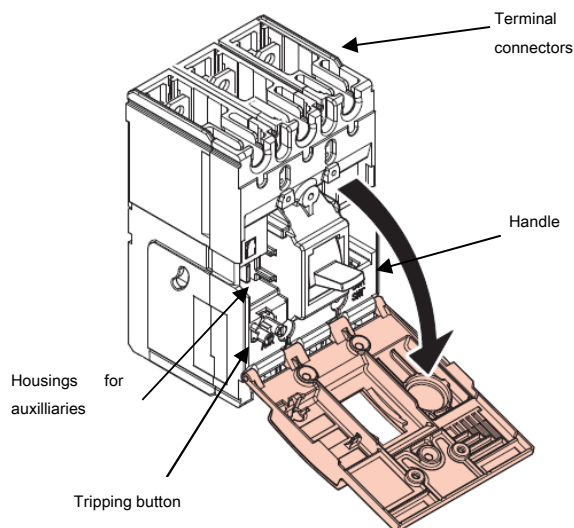
# DPX<sup>3</sup> 160

## Magnetic only

Reference(s) : 4 207 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17

### 5. ELECTRICAL AND MECHANICAL CHARACTERISTICS

#### 5.1 Main parts constituting the circuit breaker



| Circuit Breaker                                  | DPX <sup>3</sup> 160 E/B<br>(16kA, 25kA)                                        |
|--------------------------------------------------|---------------------------------------------------------------------------------|
| Rated current (A)                                | 16, 25, 50, 63                                                                  |
| Poles                                            | 3                                                                               |
| Rated insulation voltage $U_i$ (V)               | 800                                                                             |
| Rated operating voltage (50/60Hz) $U_e$ (V)      | 690                                                                             |
| Rated impulse withstand current $U_{imp}$ (kV)   | 8                                                                               |
| Rated frequency (Hz)                             | 50 - 60                                                                         |
| Reference ambient temperature (°C)               | 40 - 50                                                                         |
| Operating temperature (°C)                       | -25 ÷ 70                                                                        |
| Mechanical endurance (cycles)                    | 25000                                                                           |
| Mechanical endurance with motor control (cycles) | 25000                                                                           |
| Electrical endurance at $I_n$ (cycles)           | 8000                                                                            |
| Electrical endurance at 0.5 $I_n$ (cycles)       | 10000                                                                           |
| Utilization category                             | A                                                                               |
| Suitable for isolation                           | Yes                                                                             |
| Type of protection                               | Magnetic                                                                        |
| Magnetic adjustment                              | 400A ( $I_n=16A$ ); 500( $I_n=25A$ );<br>630A ( $I_n=50A$ ); 1000( $I_n=63A$ ); |
| Neutral protection for 4P version (% $I_{th}$ )  | 100                                                                             |
| Dimensions (W x H x D) (mm) 3P                   | 80 x 130 x 97                                                                   |
| Dimensions (W x H x D) (mm) 4P                   | 110 x 130 x 97                                                                  |
| Weight (kg)                                      | 1.2(3P) - 1.4(4P)                                                               |

#### 5.2 Breaking capacity (kA)

|                                                    |                       | Breaking capacity (kA) & $I_{cs}$ |      |
|----------------------------------------------------|-----------------------|-----------------------------------|------|
|                                                    |                       | 3P                                | 3P   |
| IEC 60947-2                                        | $U_e/I_{cu}$          | 16kA                              | 25kA |
|                                                    | 240 V AC              | 25                                | 35   |
|                                                    | 415 V AC              | 16                                | 25   |
|                                                    | 500 V AC              | 8                                 | 10   |
|                                                    | 690V AC               | 5                                 | 5    |
|                                                    | 250 V DC              | 10                                | 10   |
|                                                    | $I_{cs}(\% I_{cu})$   | 100                               | 100  |
| Rated making capacity under short circuit $I_{cm}$ |                       |                                   |      |
| NEMA AB-1                                          | $I_{cm}$ (kA) at 415V | 32                                | 53   |
|                                                    | 240 V AC              | 25                                | 35   |
|                                                    | 500 V AC              | 8                                 | 10   |
|                                                    | 690V AC               | 5                                 | 5    |

#### 5.3 Power losses per pole under $I_n$

Circuit breaker

|                | Power losses per pole (W) |     |     |     |
|----------------|---------------------------|-----|-----|-----|
|                | $I_n$ (A)                 |     |     |     |
|                | 16                        | 25  | 50  | 63  |
| Cage terminals | 0.2                       | 0.4 | 1.4 | 1.8 |

Values in the table are referred to single phase and they are misured with cold breaker (with hot breaker, increase of 10% must be considered)

#### 5.4 Load operations

| Loads operation   |             |
|-------------------|-------------|
| Rated current (A) | $I_n = 63A$ |
| Opening (N)       | 45          |
| Closing (N)       | 78          |
| Reset (N)         | 75          |

# DPX<sup>3</sup> 160

## Magnetic only

Reference(s) : 4 207 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17

### 5.6 Functioning in particular conditions

#### 5.6.1 Temperature

| I <sub>n</sub> (A) | Temperature T <sub>a</sub> (°C) |     |     |     |     |     |     |     |     |     |     |     |
|--------------------|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                    | -25                             | -20 | -10 | -5  | 0   | 10  | 20  | 30  | 40  | 50  | 60  | 70  |
| 16                 | 23                              | 22  | 21  | 21  | 20  | 19  | 18  | 17  | 16  | 16  | 15  | 14  |
| 25                 | 37                              | 35  | 34  | 33  | 32  | 30  | 28  | 27  | 25  | 25  | 23  | 22  |
| 40                 | 55                              | 54  | 52  | 51  | 50  | 47  | 43  | 43  | 40  | 40  | 36  | 35  |
| 63                 | 90                              | 88  | 85  | 84  | 82  | 81  | 71  | 67  | 63  | 63  | 58  | 55  |
| 80                 | 115                             | 113 | 111 | 109 | 107 | 97  | 87  | 83  | 80  | 80  | 74  | 71  |
| 100                | 129                             | 126 | 123 | 122 | 117 | 111 | 109 | 105 | 100 | 100 | 94  | 93  |
| 125                | 159                             | 157 | 154 | 152 | 149 | 138 | 134 | 131 | 125 | 125 | 112 | 110 |
| 160                | 218                             | 215 | 207 | 200 | 198 | 190 | 176 | 168 | 160 | 160 | 146 | 138 |

#### 5.6.2 Altitude

| Altitude (m)                                    | 2000           | 3000                  | 4000                  | 5000                 |
|-------------------------------------------------|----------------|-----------------------|-----------------------|----------------------|
| U <sub>e</sub> (V)                              | 690            | 590                   | 520                   | 460                  |
| I <sub>n</sub> (A) (T <sub>a</sub> = 40°C/50°C) | I <sub>n</sub> | 0.98 x I <sub>n</sub> | 0.93 x I <sub>n</sub> | 0.9 x I <sub>n</sub> |

#### 5.6.3 Use in DC

See table A.

## 6. CONFORMITY

DPX<sup>3</sup> range of product concerning circuit-breakers are in full compliance with the EN/IEC standard 60947-2.

The certificate are issued by LOVAG and/or by IECEE CB-scheme certification scheme.

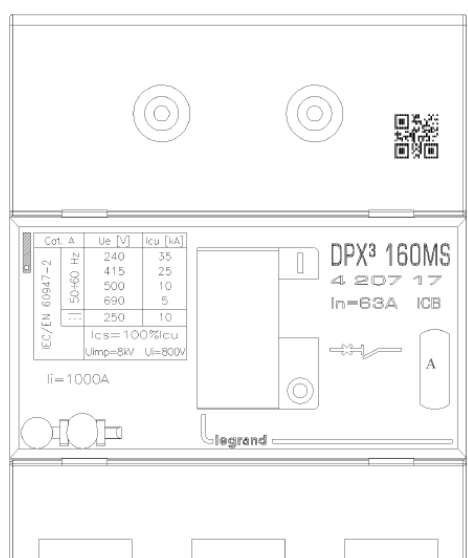
All the product range are CE, CCC, EAC, ANCE marked.

DMX<sup>3</sup> are full in compliance with the Shipping Register of Lloyds, RINA, Bureau Veritas, Germanische Lloyds, Norske Veritas and ABS.

"Tropical climate" :

- execution II (all climates) according to IEC 60947-1 Annex Q, Cat. F.

### 6.1 Marking



## 7. EQUIPMENTS AND ACCESSORIES

### 7.1 Releases

- Shunt releases

|              |               |
|--------------|---------------|
| 12 V ac/dc   | ref. 4 210 12 |
| 24 V ac/dc   | ref. 4 210 13 |
| 48 V ac/dc   | ref. 4 210 14 |
| 110-130 V ac | ref. 4 210 15 |
| 110-130 V dc | ref. 4 210 85 |
| 200-277 V ac | ref. 4 210 16 |
| 200-277 V dc | ref. 4 210 86 |
| 380-480 V ac | ref. 4 210 17 |

Maximum power = 400 VA / W

- Undervoltage releases

|                 |               |
|-----------------|---------------|
| 12 V ac/dc      | ref. 4 210 18 |
| 24 V ac/dc      | ref. 4 210 19 |
| 48 V ac/dc      | ref. 4 210 20 |
| 110-130 V ac/dc | ref. 4 210 21 |
| 200-240 V ac    | ref. 4 210 22 |
| 277 V ac        | ref. 4 210 23 |
| 380-415 V ac    | ref. 4 210 24 |
| 440-480 V ac    | ref. 4 210 25 |

Maximum power = 4 VA

Circuit breaker opening time < 50 ms

- Time-lag undervoltage releases (800ms)

Time-lag modules with voltage:

|          |               |
|----------|---------------|
| 230 V ac | ref. 0 261 90 |
| 400 V ac | ref. 0 261 91 |

Release:

To be equipped with a time-lag module ref. 4 210 98

### 7.2 Auxiliary contact

|                                                    |               |
|----------------------------------------------------|---------------|
| set of connectors for aux contacts                 | ref. 4 210 44 |
| aux contacts (1NC and 1 NO) for all rotary handles | ref. 4 210 10 |
| signalling contact plugged-in version              | ref. 4 210 48 |
| Changeover switch 3A – 250 VAC                     | ref. 4 210 11 |

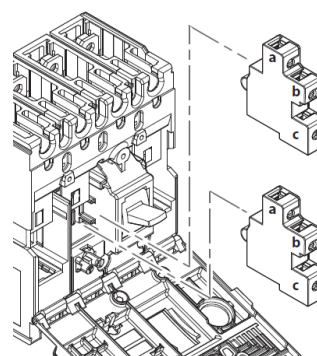
To show the state of the contacts or opening of the DPX<sup>3</sup> on a fault:

Auxiliary contact (standard) OC  
Fault signal CTR

| Auxiliary contact                 |              |           |
|-----------------------------------|--------------|-----------|
| Nominal voltage (V <sub>n</sub> ) | V (AC or DC) | 24 to 250 |
| Intensity (A)                     | 24 V DC      | 5         |
|                                   | 48 V DC      | 1.7       |
|                                   | 110 V DC     | 0.5       |
|                                   | 230 V DC     | 0.25      |
|                                   | 110 V AC     | 4         |
|                                   | 230/250 V AC | 3         |

Configurations:

DPX<sup>3</sup> 160 → 1 auxiliary contact + 1 fault signal



# DPX<sup>3</sup> 160

## Magnetic only

Reference(s) : 4 207 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17

### 7.3 Rotary handles

#### Direct

- DPX<sup>3</sup> direct rotary handle ref. 4 210 01
- DPX<sup>3</sup> emergency direct rotary handle ref. 4 210 02

#### Vari-depth handle IP55

- DPX<sup>3</sup> vari depth rotary handle ref. 4 210 04
- DPX<sup>3</sup> emergency vari depth rotary handle ref. 4 210 05

#### Locking accessories

- Ronis type flat key (cod. ABA90GEL6149) for direct rotary handle ref. 4 210 06
- Profalux type star key (cod. HBA90GPS6149) for direct rotary handle ref. 4 210 07
- Ronis type flat key (cod. ABA90GEL6149) for vari-depth handle ref. 4 210 08
- Profalux type flat key (cod. HBA90GPS6149) for vari-depth handle ref. 4 210 09

### 7.4 Mechanical accessories

#### Insulated shields (phase barriers)

- Set of 36 ref. 4 210 70

#### Sealable terminal shields

- sealable terminal shield for rear terminals 3P ref. 4 210 50
- sealable terminal shield for rear terminals 4P ref. 4 210 51
- sealable terminal shield for front spreaders 3P ref. 4 210 54
- sealable terminal shield for front spreaders 4P ref. 4 210 55

#### Padlocks

- DPX<sup>3</sup> padlock accessory for handle ("open" position) ref. 4 210 49

#### Interlock

- DPX<sup>3</sup> interlock for fixed version ref. 4 210 58
- DPX<sup>3</sup> interlock for plug-in / draw-out version ref. 4 210 59

### 7.5 Connection accessories

#### Cage terminals

- terminals for Cu cables kit (3) - flex 1x70mm<sup>2</sup>, rigid 1x95mm<sup>2</sup>, bar/cable lug 14mm ref. 4 210 93
- terminals for Cu cables kit (4) - flex 1x70mm<sup>2</sup>, rigid 1x95mm<sup>2</sup>, bar/cable lug 14mm ref. 4 210 94
- high capacity terminals for Al or Cu cables kit (3) - flex 1x120mm<sup>2</sup>, rigid 1x150mm<sup>2</sup>, bar/cable lug 18mm ref. 4 210 26
- high capacity terminals for Al or Cu cables kit (4) - flex 1x120mm<sup>2</sup>, rigid 1x150mm<sup>2</sup>, bar/cable lug 18mm ref. 4 210 27
- rack screw and nut for cable lug kit (3) ref. 4 210 28
- rack screw and nut for cable lug kit (4) ref. 4 210 29

#### Front spreaders

- DPX<sup>3</sup> front spreaders for 3P DPX<sup>3</sup> 160 (set of 3) ref. 4 210 32
- DPX<sup>3</sup> front spreaders for 4P DPX<sup>3</sup> 160 (set of 4) ref. 4 210 33

#### Rear terminals

- DPX<sup>3</sup> flat rear terminals for 3P DPX<sup>3</sup> 160 (set of 3) ref. 4 210 36
- DPX<sup>3</sup> flat rear terminals for 4P DPX<sup>3</sup> 160 (set of 4) ref. 4 210 37

### 7.6 Plug-in version

#### Bases

- front/rear terminals plug-in base 3P DPX<sup>3</sup> 160 ref. 4 210 40
- front/rear terminals plug-in base 4P (with or without earth leakage module) ref. 4 210 41

#### Locking accessories

- Ronis type flat key (cod. ABA90GEL6149) for plug-in base ref. 4 210 45

- Profalux type star key (cod. HBA90GPS6149) for plug-in base ref. 4 210 46
- padlock accessory for plug-in base ref. 4 210 47

### 7.7 Motor operator

- side motor operator 24-230 Vac/dc ref. 4 210 60
- front motor operator 24-230 Vac/dc ref. 4 210 61

#### Locking accessories for front motor operator

- Ronis type flat key (cod. ABA90GEL6149) for front motor operator ref. 4 210 62
- Profalux type flat key (cod. HBA90GPS6149) for front motor operator ref. 4 210 63
- padlock selector for front motor operator ref. 4 210 64

#### Locking accessories for side motor operator

- Ronis type flat key (cod. ABA90GEL6149) for side motor operator ref. 4 210 65
- Profalux type flat key (cod. HBA90GPS6149) for side motor operator ref. 4 210 66
- padlock selector for side motor operator ref. 4 210 67

#### DIN plate

- DPX<sup>3</sup> din plate for motor operator DPX<sup>3</sup> 160 ref. 4 210 68
- Installation kit for non-XL<sup>3</sup> enclosures ref. 4 210 76

### 7.8 Mounting on rail fixing plate

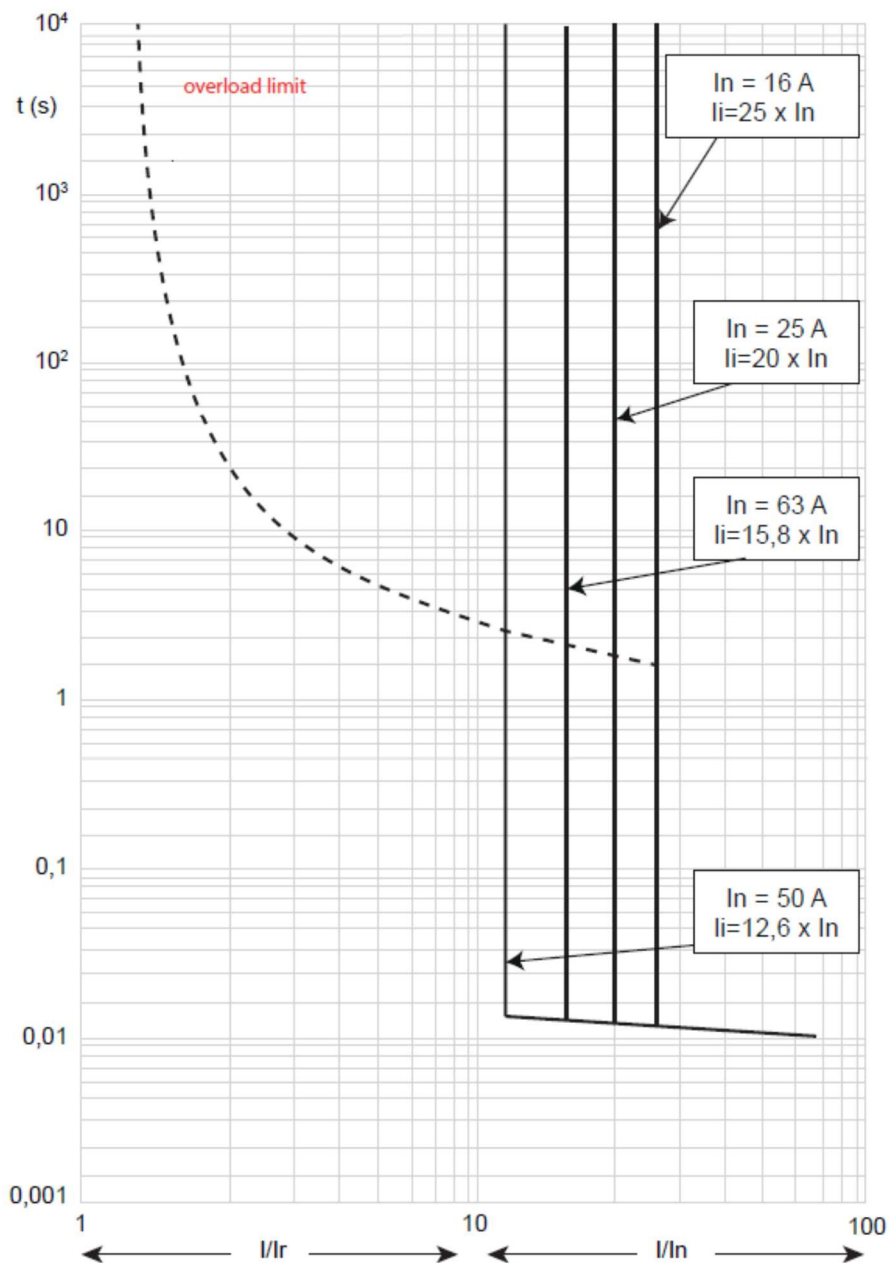
- DPX<sup>3</sup> 160 3P/4P without earth leakage module ref. 4 210 71
- DPX<sup>3</sup> 160 3P/4P with side mounting motor operator ref. 4 210 68

### 7.9 Spare parts

- Fixing screws (set of 4) for plate installation ref. 4 210 81
- Battery kit (batteries + extractor) for 1 breaker ref. 4 210 82
- Fixing screws (set of 12) for DIN installation ref. 4 210 84
- Mini USB cap (for 20 device) - light grey colour ref. 4 210 89
- Plug-in base kit (for 1 breaker 3P or 4P) ref. 4 210 90
- Compact terminal shields 4P (set of 2) ref. 4 210 96
- Generic seals kit (for 4x seal kit) ref. 4 210 95

## 8. CURVES

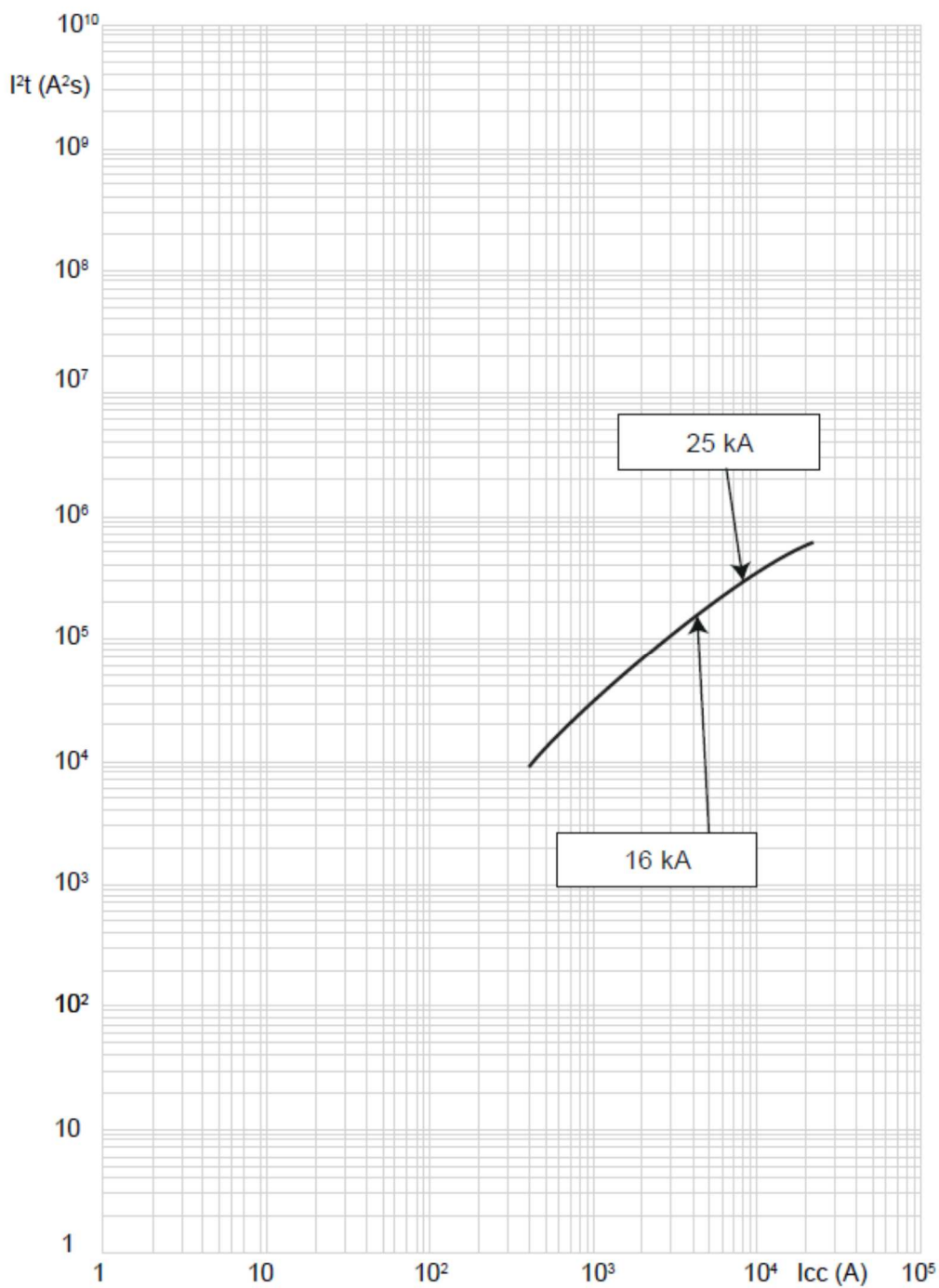
### 8.1 Thermal magnetic tripping curve



$I_{cu} = 16-25 \text{ kA}$   $I_{max} = 63 \text{ A}$  3P  $U_e = 415 \text{ Vac}$

| Value | Description               |
|-------|---------------------------|
| $t$   | time                      |
| $I$   | current                   |
| $I_n$ | rated current             |
| $I_r$ | long time setting current |

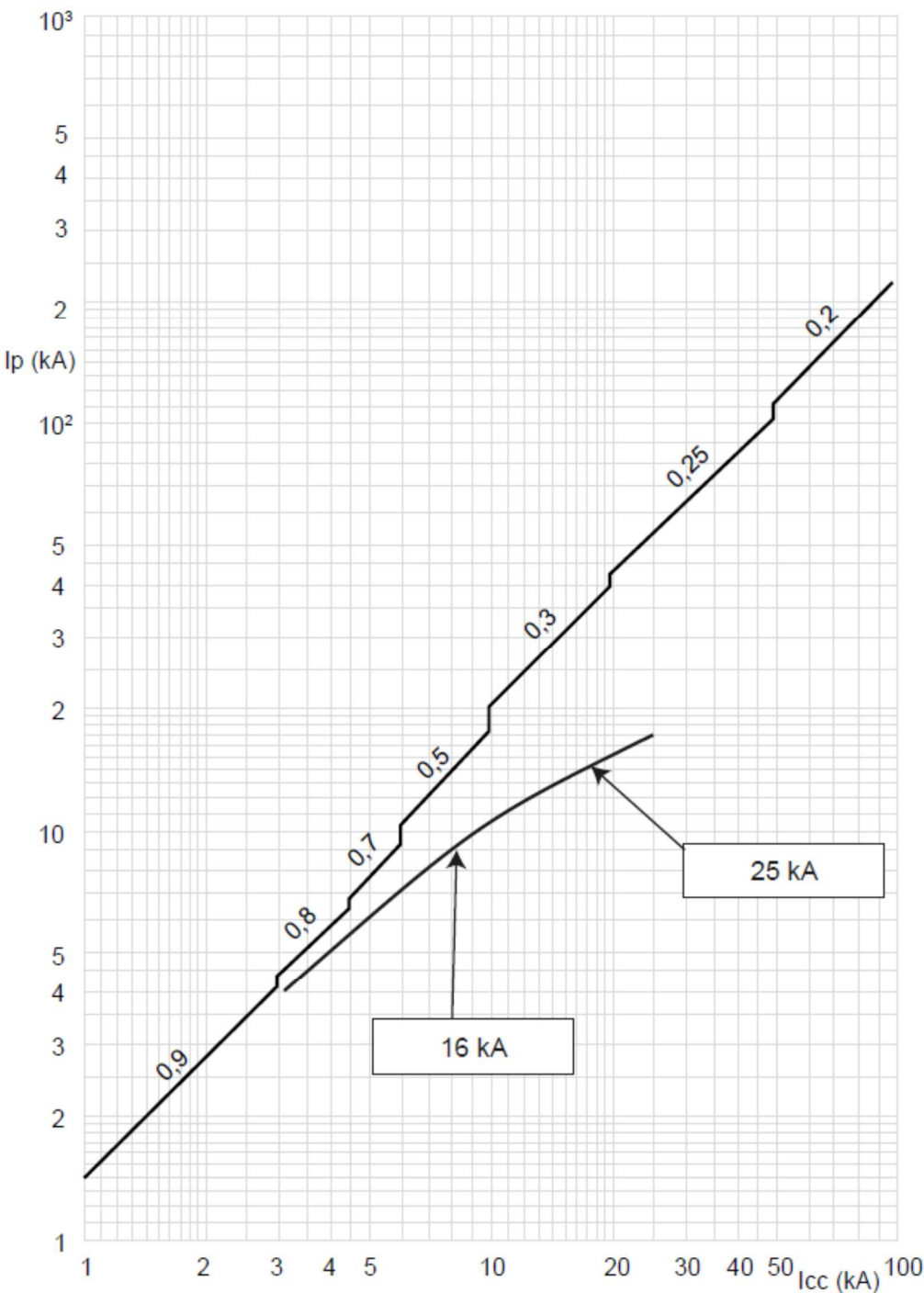
## 8.2 Pass-through specific energy characteristic curve



$I_{cu} = 16-25$  kA  $I_{max} = 63$  A 3P  $U_o = 415$  Vac

| Value                     | Description                  |
|---------------------------|------------------------------|
| $I_{cc}$                  | short circuit current        |
| $I^2t$ (A <sup>2</sup> s) | pass-through specific energy |

8.3 Cut-off peak current characteristic curve (kA)



$I_{cu} = 16-25 \text{ kA}$   $I_{max} = 63A$  3P  $U_o = 415Vac$

| Value                                                                               | Description                                                                         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| $I_{cc}$                                                                            | estimated short circuit symmetrical current (RMS value)                             |
| $I_p$                                                                               | maximum short circuit peak current                                                  |
|  | maximum prospective short circuit peak current<br>corresponding at the power factor |
|  | maximum real peak short circuit current                                             |

# DPX<sup>3</sup> 160

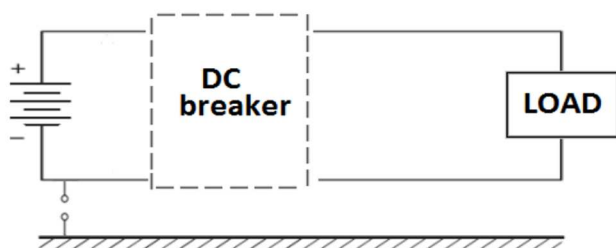
## Magnetic only

Reference(s) : 4 207 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17

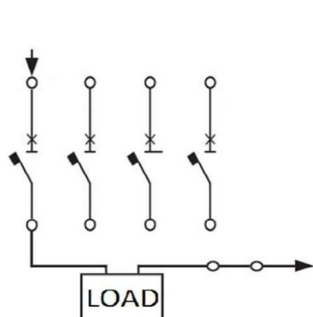
### A) Breaking capacity in DC (kA)

|                      |                    | 1 pole * | 2 poles in series * |       |       | 3 poles in series * |       |       |
|----------------------|--------------------|----------|---------------------|-------|-------|---------------------|-------|-------|
| I <sub>cu</sub> (kA) | I <sub>n</sub> (A) | 60 V     | 60 V                | 110 V | 250 V | 110 V               | 250 V | 500 V |
| 16                   | 16 - 25 - 50 - 63  | 16       | 16                  | 16    | 10    | 16                  | 10    | 10    |
| 25                   | 16 - 25 - 50 - 63  | 25       | 25                  | 25    | 10    | 25                  | 10    | 10    |

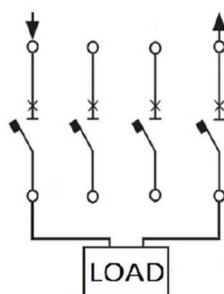
These values are applied to DC networks insulated from the ground  
(this diagram applies to both 3P and 4P circuit breakers):



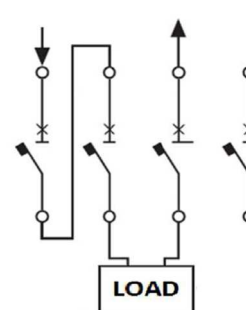
\* Connection modality of the DC breaker:



1 pole



2 poles in series



3 poles in series